

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
25 April 2002 (25.04.2002)

PCT

(10) International Publication Number
WO 02/33604 A2

(51) International Patent Classification⁷: **G06F 17/60**

(21) International Application Number: PCT/GB01/04578

(22) International Filing Date: 15 October 2001 (15.10.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0025327.8 16 October 2000 (16.10.2000) GB

(71) Applicant (for all designated States except US): **SCAN-DEX LTD.** [GB/GB]; Tranley House, Tranley Mews, Fleet Road, London NW3 3QW (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LEWIN, Aharon** [GB/GB]; 27 Hampstead Way, London W11 7HN (GB).

(74) Agents: **BERESFORD, Keith, Denis, Lewis et al.**; Beresford & Co., 2-5 Warwick Court, High Holborn, London WC1R 5DH (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

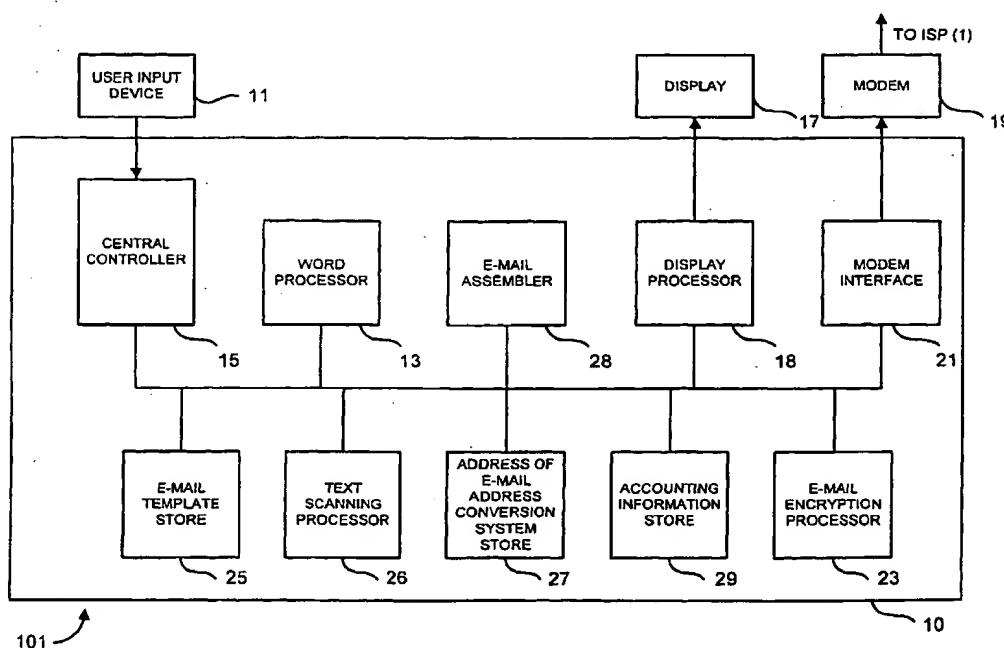
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI-patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTRONIC MAIL SYSTEM AND METHOD



(57) Abstract: A system is described for receiving e-mails and directing the e-mails, or its contents as a printed paper document, to one or more recipients within a plurality of users, the system being arranged to derive the postal address of each recipient from the text of the e-mail and convert it to his/her e-mail address as previously provided to the service provider, or when such an e-mail address is not available, to deliver the text of the e-mail to either the postal address, or to other devices capable of receiving a message.

WO 02/33604 A2

- 1 -

ELECTRONIC MAIL SYSTEM AND METHOD

This invention relates to electronic mail (e-mail) systems and methods. In particular, the invention relates to systems and methods for addressing e-mails from a sender to one or more recipients.

In the presently available e-mail systems, as each user is free to choose his own e-mail address and Internet Service Provider (ISP), it is only possible for a sender to send an e-mail to a recipient if the sender knows the recipient's e-mail address. This restricts the number of people to whom e-mails may be sent by any particular user, thus in turn restricting the overall usage of electronic mail. Furthermore, as not every intended recipient actually has access to an e-mail reception system, a sender is prevented from sending out, for example, e-mail Christmas greetings messages to everyone on their address list.

Similarly, commercial organisations, such as utilities, are likewise prevented from sending out bulk notices to their customers by e-mail, thus denying them the lower cost and the associated environmental advantages. The sending out of invoices by e-mail by such utilities is

- 2 -

currently restricted to customers who have registered their e-mail address either directly, or indirectly through intermediaries, with the utility, thus reducing the opportunities for the sending of invoices and also
5 reducing the facilitating of other benefits such as e-banking to pay the invoice payments that are a byproduct of electronic communications.

It is an object of the present invention to provide a
10 system and method for addressing e-mails wherein the above problems may be avoided.

According to a first aspect of the present invention, there is provided a system for receiving e-mails and
15 directing the e-mails to one or more recipients within a plurality of users, whether they have an e-mail address or not, the system being arranged to derive the postal address of each recipient from the text of the e-mail and to convert, where possible, the postal address to a
20 respective e-mail address for each recipient. Where there is no e-mail address available, then the system is arranged to produce a physical document which may be sent by, for example, post or another physical delivery system to the recipient's postal address.

25

- 3 -

It will be appreciated that a postal address is a description of a geographic location, providing a set of instructions on how to physically reach a place such as a house or a factory etc. An e-mail address on the other hand is totally non-geographic in the sense that it does not include instructions as to how to physically reach the postal address of the e-mail address owner. The invention provides a bridge between postal and e-mail addresses to enable a sender to reach the e-mail address of an intended recipient knowing only the postal address.

Where the recipient does not have an e-mail address, the system is arranged to provide alternative delivery modes which may include a facsimile system, a pager, a cellular phone, as well as physical delivery of a physical document.

According to a second aspect of the present invention, there is provided a system for sending e-mails for a plurality of intended recipients at different e-mail addresses to a single address at an e-mail address conversion system effective to re-address the e-mail dependent on a postal address incorporated in the text of each e-mail.

- 4 -

A number of embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

5 Figure 1 is a schematic overview of an e-mail transmission and reception system including a system for addressing e-mails in accordance with an embodiment of the invention;

10 Figure 2 is a block diagram of an e-mail transmission system used in the system of Figure 1;

Figure 3 is a flow diagram explaining the process steps performed by the e-mail transmission system of Figure 2;

15

Figure 4 illustrates a window on a display unit of the e-mail transmission system of Figure 2 in use in the method illustrated in Figure 3;

20 Figure 5 is a block diagram of an e-mail address conversion system used in the system of Figure 1;

Figure 6 is a flow diagram explaining the process steps by the e-mail address conversion system of Figure 5;

25

- 5 -

Figure 7 is a block diagram of an e-mail reception system used in the system of Figure 1;

5 Figure 8 is a flow diagram explaining the process steps performed by the e-mail reception system of Figure 7;

Figure 9 is a block diagram of a bulk mailer invoice system of Figure 1;

10 Figure 10 is a flow diagram illustrating the process steps in the e-mail address conversion system of Figure 5 in response to information from the bulk mailer invoice system of Figure 9; and

15 Figure 11 illustrates an alternative window configuration on the display unit of the e-mail transmission system of Figure 2 in an alternative method.

OVERVIEW OF THE SYSTEM

20

Referring to Figure 1, this drawing illustrates an e-mail transmission and reception system including an e-mail transmission system 101 connected to the Internet through an Internet Service Provider (hereinafter "ISP") 103, an
25 e-mail reception system 105 and an e-mail address

- 6 -

conversion system (hereinafter "EACS") 107 for addressing an e-mail transmitted from the e-mail transmission system 101 to the e-mail reception system 105. An invoice transmission system 109 of a bulk mailer, for example a utility such as a Gas Board, is also shown connected to the EACS 107 via a communication line 110, for example a lease line, an ISDN line or a cable connection. Alternatively, the connection between the bulk mailer system 105 and the EACS 107 may be made using, for example, a satellite system, or the physical delivery of a magnetic tape or a CD ROM carrying the necessary information.

Unlike present e-mail systems in which it is necessary for the sender to know the recipient's e-mail address, in accordance with an embodiment of the present invention, in order to send an e-mail to the recipient, the sender addresses the e-mail to a global address at the EACS provider, incorporating as much of the postal address of the recipient within the text of the e-mail as the sender is able to provide, including the postcode if this is known by the sender. This postal address will be converted by the EACS 107 to the e-mail address for the recipient, the e-mail then being transmitted by the EACS 107 to the recipient's e-mail reception system.

- 7 -

Similarly, invoices from the bulk mail invoice system may be addressed to the recipient's postal address, the EACS 107 enabling e-mails containing the invoice information to be transmitted to the recipient's e-mail reception system.

In order to enable any sender to send e-mails to a particular recipient, each potential recipient who wishes to benefit from the service registers his or her name and postal address with the EACS provider. Each user will also register their preferred mode of delivery to enable delivery to a specified e-mail address, or an alternative e-mail address or even an alternative address system such as postal delivery as will be discussed later. If the user does not register his/her preferred mode of delivery, a default condition of postal delivery will be set up as also discussed later.

The user may also register a password if he or she so wishes, for example if there is more than one person using the registered e-mail address, it then being required that the password be entered at the user's e-mail reception system to view an incoming e-mail. All this information is recorded by the EACS 107 provider.

- 8 -

It will be appreciated that in practice a large number of e-mail transmission systems and e-mail reception systems will be present in the e-mail transmission and reception system and usually e-mail transmission systems and reception systems will be combined in a single apparatus. However, for the sake of simplicity, only a single e-mail transmission system 101 and a single e-mail reception system 105 are shown in the figures, together with the bulk mailer invoice transmission system 109.

SENDER'S TRANSMISSION SYSTEM

Referring now also to Figure 2, in this particular embodiment, the sender's e-mail transmission system 101 takes the form of a computer 10 connected to a user input device 11, for example a computer keyboard, through which the sender may input instructions and text into software implemented by the computer 10 as a word processor 13 via a central controller 15 within the computer 10. A display 17 connected to display processor 18 enables the text to be displayed. The computer 10 is connected to the ISP 103 via a telephone line connected to a modem 19 or similar device which receives signals from the computer 20 via a modem interface 21. The computer 10

- 9 -

also includes an e-mail encryption processor 23 for encrypting e-mails to be sent.

In accordance with a preferred embodiment of the invention, before sending an e-mail to the recipient, the sender obtains a short piece of software from the EACS 107 provider, either via a disk or downloaded from the Internet. When loaded on the sender's computer 20, this software establishes a text scanning processor 26 for scanning the text of the e-mail to derive the recipient's address, an e-mail addressing and transmitting processor 27, an e-mail assembler 28 for assembling e-mails and an account information store 29 for storing credit information on an account maintained with the EACS 107 provider.

Figure 3 is a flow diagram of the process steps performed at the e-mail transmission system 101 when sending an e-mail via the EACS 107, whilst Figure 4 illustrates a typical window which is displayed on display 37.

In order to send an e-mail to a recipient who has previously registered with the EACS provider, in step S301 the sender prepares the text of an e-mail in conventional manner using the user input device 11 to

- 10 -

input instructions and text to the word processor 13, in order to display the text of the e-mail on display 17.

In step S302, the text scanning processor 26 scans the text of the e-mail, in particular the postal address and postcode looking for the recipient's name and postal address using parsing software to look for combinations of numbers and words which usually define an address, in particular looking for words such as "Road", "Mews", "Square" etc, followed by a known town or locality, and then by sequences of numbers and letters preferably defining a postcode.

The software provided by the EACS 107 also establishes a dialogue box indicated as Box 409 in Figure 4. This prompts the sender to check whether the postal address found within the text using the scanning processor 26 is the correct address for the intended recipient of the e-mail. This is particularly useful where, for example, more than one address is incorporated within the body of the text, the second address merely forming part of the narrative of the text or, for example, an address where a copy of the text should be sent.

- 11 -

A simplified form of Extensible Mark-up Language (XML), which is a restricted form of the Standard Generalised Markup Language (SGML) in accordance with ISO 8879 may be used to tag the part of the e-mail containing the postal address. The use of XML is described in more detail hereafter.

In step S303, the e-mail is assembled by e-mail assembler 28 using the global e-mail address stored in store 27.

In step S304, it is determined from user input instructions whether encryption of the e-mail is required. If encryption is required, encryption of the parts of the text other than the recipient's name and postal address is performed in step S305 by encryption processor 23.

Finally, the software provided by the EACS establishes a button 407 on the window which is shown in Figure 4 as a post-box icon. When addressed in step S306, this button 407 is effective to cause the e-mail to be addressed with the e-mail address of the EACS provider and to send the e-mail via the ISP 103 to the EACS 107.

- 12 -

Sending the e-mail to the EACS provider also triggers a signal effective to debit the credit held in the account information store 29. This accounting system may be established via the Internet from the EACS 107 provider using a credit card payment. Alternatively, effective credits for the account may be purchased from local shops in the form, for example, of a code number, which is communicated by telephone or e-mail to the EACS 107 provider who then allocates the credits to the user.

10

It will also be appreciated that whilst the above example describes the sender being provided with software for scanning the text of an e-mail for the postal address of the recipient, addressing and automatically sending an e-mail to the EACS 107, and keeping an account of the use of the system, whilst these features are preferable, the scanning of the text of the e-mail to identify the recipient's address may be performed by the EACS.

15

20

However, on the other hand, other features may be provided at the sender system. For example, a self-contained accounting system may be established, with information being established at the sender system 101, and automatically debited when sending an e-mail to the EACS 107. This may, however, require the sender to send

25

- 13 -

use information to the EACS 107 to enable the EACS to audit the use of the accounting system to prevent fraud. Alternatively, the system may be set up such that no charge is made to the sender for sending e-mails in which case the accounting system may be omitted altogether.

In an alternative to the use by the sender of the scanning software and the tagging of the recipient's postal address, the software downloaded by the sender may establish an e-mail template store 25 for enabling a user to enter address details at a specific location in the text of an e-mail.

The stored template in template store 25 prompts the sender to type on input device 11, the postal address and postcode of the recipient at certain locations 401, 403 in the window shown in Figure 11. This ensures that the postal address and postcode are positioned at a predeterminable position in the e-mail message during step S301, step S302 being omitted.

It will be appreciated that the use of a template by the sender positioning the postal address and postcode the processor simplifies the identification of an address. However, the scanning software usually enables the postal

- 14 -

address and postcode to be found within the text of the e-mail even if the template is not used as long as the parsing software is able to identify the necessary and sufficient elements of the postal address to establish it as likely to be a valid postal address, with the dialogue box enabling the address to be confirmed.

EACS SYSTEM

Turning now to Figure 5, this figure illustrates the EACS 107 which is effective to receive e-mails sent by the sender's e-mail transmission system 101 and re-address the e-mails to the recipient's e-mail reception system 105.

The EACS 107 comprises a computer indicated generally as 40 having an e-mail input server 41 arranged to receive e-mails from the Internet and an e-mail output server 43 arranged to process the received e-mails until a recipient requests the e-mail, and then transmit the e-mail to the recipient via the Internet other than in the case that the recipient's e-mail address is with another ISP, in which case the e-mail is transferred immediately to the specified ISP. The computer 40 also includes a utility user interface 45 arranged to receive signals

- 15 -

from the bulk mail user communication line 110. A printer driver 47 is provided effective to provide printer drive signals to a printer 49 connected to the computer 40.

5

The computer 40 also includes a database 51 storing each user name and their postal address, their e-mail address, encryption data and each user's preferred delivery mode. In the U.K., the database may be based on the PAF database which is maintained by the Royal Mail, which contains postal addresses including postcodes and is continuously updated by the Royal Mail, the EACS 107 adding the corresponding names derived from a source such as the electoral register. Where a user has registered with the EACS 107 his/her own names, salutations, etc., this information can also be recorded in the database 51. The software for producing the database in the U.K. is suitably based on "Matchcode" (Trade Mark) software produced by Capscan Limited of Tranley House, Tranley Mews, Fleet Road, Hampstead, London, NW3 2QW. In other countries similar database of all known addresses are available usually from national post office services. Alternatively, other sources can be combined to produce the database.

25

- 16 -

Also included within the computer 40 are a text scanning and matching processor 55 for scanning the text of incoming e-mails to derive the user's name and postal address, and matching the name and address to the entry in the database 51, this includes an XML processor for reading XML formatted documents. A fuzzy matching processor 57 is provided for use where the text scanning processor 55 is not able to produce a unique match. An encryption processor 59 is provided for encrypting incoming e-mails. A utility invoice template store 53 is provided for storing invoice templates from the utility invoice system 109. Finally, an e-mail assembler processor 61 is provided for assembling e-mails to be transmitted.

It will be appreciated that all the functions within the computer 40 will generally be implemented by software running on the central processing unit of the computer 40. This software may be stored as processor implementable instructions on a disc, or may be downloaded as a signal from a network or from the Internet.

Figure 6 illustrates the process steps performed by computer 40 of the EACS 107.

- 17 -

In step S601, the e-mail is received by the e-mail input server 41, and stored.

5 In step S602, the text scanning and matching processor 55 interrogates the incoming e-mail to derive the recipient's name and postal address either using the XML where this has been used, or looking for the address at a specific location where the template has been used.

10 In step S603, the text scanning and matching processor 55 compares the derived name and postal address with the names and postal addresses stored in the database 51.

15 If in step S604 it is determined that the text scanning and matching processor 55 is not able to establish a unique address within the database 51 of names and postal addresses 51, the fuzzy matching processor 57 is used to enable the scanned text to undergo a fuzzy matching process in step S605 in order to match, for example, 20 unusual abbreviations, misspellings and incomplete addresses. If, however, even after the fuzzy matching process it is not possible to identify a unique address for the recipient in step S606, the EACS is arranged in step S607 to send a signal back to the sender's e-mail 25 transmission system 101 via the Internet and the ISP 103,

- 18 -

to indicate to the sender that it has not been possible to identify an address for the intended recipient of the e-mail.

5 In step S608, the encryption processor 59 then determines whether the sender has instructed that the e-mail should be encrypted. If this is required and the encryption has not already taken place in the e-mail transmission system 101 by encryption processor 23, then in step S609 the
10 text of the e-mail message, but not including the intended recipient name, postal address and postcode, is encrypted.

In step S610, the e-mail assembler processor 61 is
15 arranged to interrogate the database 51 in order to establish the preferred form of delivery, which has been registered by the recipient. Where the preferred form of delivery is established in step S610 to be an e-mail address in step S611, the e-mail is assembled by e-mail
20 assembler processor 61 and sent to the e-mail output server 43 to await transmission to the recipient e-mail reception system 105. On the other hand, where the preferred form of delivery is established in step S610 to be a postal delivery, the e-mail text is sent through
25 the printer driver 47 to the printer 49 in step S612.

- 19 -

The printed text is then enveloped and arranged for delivery by, for example, a postman. The sender's account is then debited by an amount dependent on the mode of delivery and confirmation of the amount sent to the sender.

It will be appreciated that whilst the printer 49 is shown adjacent to the computer 40 at the EACS 107, it is a feature of the present invention that the printing of the text of an e-mail to be delivered to a recipient by, for example, post can be performed at a location much closer to the recipient in order to increase the speed of delivery and reduce the transport costs associated with the delivery.

It is possible that a user who does not have their own e-mail address may choose to use an e-mail collection point at a location close to them. This could be, for example, a Post Office branch or a local newsagent who is a member of a consortium set up to provide this service. A milk delivery company could also provide this service. It is also possible to provide a "premium service" allowing delivery of the communication to the recipient's door using a mobile e-mail delivery service.

- 20 -

RECIPIENT'S E-MAIL RECEPTION SYSTEM

Referring now also to Figure 7, this illustrates the recipient's e-mail reception system 105. In the particular embodiment being described, this comprises a computer 70 including a central controller 71 arranged to receive information from a telephone line interfacing with the Internet through an external modem 73 and also to receive user input commands from a user input device 72 such as a keyboard. The computer 70 includes a display processor 75 effective to produce signals to drive a display 77 to enable the text of an incoming e-mail to be displayed. A printer driver 79 is effective to provide drive signals to a printer 81 to enable the text of the e-mail to be printed. Finally, the computer 70 includes a security key processor 83 for restricting viewing of incoming e-mails and a decryption processor 85 for decrypting incoming encrypted e-mails as will be described in more detail later. It will be appreciated that the interface with the Internet may be, for example, via a leased line or a cable system which operate in a digital mode. In such a case, the modem 73 may be omitted.

- 21 -

Figure 8 illustrates the reception of an e-mail by the recipient.

5 In step S801, after logging onto the Internet, the recipient receives the e-mail. The system may be arranged such that the user is contacted by telephone by the EACS provider to inform the recipient that he has an e-mail waiting to be received, this being of particular use where the e-mail is to be collected elsewhere.

10

In step S802, it is determined whether the e-mail has been encrypted. If one of a number of multiple users at a particular e-mail address has arranged for a password to be set up at the EACS 107, this must be entered by a user using input device 72 before the e-mail can be viewed on display 77 in step S803. Alternatively, where a public key/private key encryption service has been used, this will involve the entry of the private key to security key processor 83 to enable the decryption processor 85 to decrypt the e-mail in step S804.

15

20

It will be appreciated that whilst in the above embodiment both the e-mail transmission system 101 and e-mail reception system 105 are computer systems, either or both of the e-mail transmission system 101 and the e-

25

- 22 -

mail reception system 105 may also take the form of a set-top box connected to a television set, a connection to the Internet being made, for example, via a cable network, radio link or a satellite system.

5

It will also be appreciated that the system may enable message delivery by other means than reception of an e-mail or postal delivery where the content of the e-mail message allows this. Such alternative means may be
10 through a telephone, through text voice software, through a short messaging system, through a facsimile, through a pager or through any other receptor which can receive a textural or graphic message in an acceptable manner. An indication that these alternative delivery means
15 should be used will be listed in the information for the particular recipient included in the database 51 at the EACS 107.

BULK SENDERS

20

The above description relates to the transmission and reception of an e-mail between two private users. The following description will now relate how the EACS may be used to enable a bulk mailer such as a utility or
25 other organisation may send information such as invoices,

- 23 -

promotional information, brochures and questionnaires by e-mail to a number of customers who have previously registered at the EACS 107, and by a default physical delivery service to those who are unable to receive an e-mail. The particular example to be described is of the sending of invoices.

Referring to Figure 9, the bulk mail invoice transmission system 109 includes a computer 90 into which invoice data for each of a large number of customers can be input using a user input device 91, for example a tape or disc transfer, that supplies data via a central controller 93 to an invoice data store 95. The computer 90 also includes an invoice template store 97 for storing templates of each invoice format. An interface 99 provides connection to the communication line 110 to the EACS 107 of Figure 1.

In order to send out invoices by e-mail to the customers, the utility firstly sends to the EACS 107, templates for producing the invoices from the template store 97, followed by invoice data for each customer from the invoice data store 95 together with a list of customers' names and addresses via the communication line 110. Use may be made of the XML data description language in order

- 24 -

to tag the invoice data so that it is possible to identify automatically which part of the information contains a postal address and what this address is to be used for, for example, the e-mail destination for the billing, the delivery address, etc. Other portions of the text may also be identified, for example, the salutation and the recipient's name. This is achieved by the use of start and end tags identifying the name, address etc enclosed between the tags.

The XML code for invoice information sent from a bulk mailer, Scandex Ltd, to the recipient, Joe Brown, might typically be as follows:

```
<To>
  <Address>
    <Name>Joe Brown</Name>
    <Line1>Flat 6</Line1>
    <Line2>23 Seaview</Line2>
    <Line3>Emblebury</Line3>
    <Line4>Yorkshire</Line4>
    <Postcode>YO13 3AB</Postcode>
  </Address>
</From>
  <Address>
    <Name>Accounts Department</Name>
    <Company>Scandex Ltd</Company>
    <Line1>Tranley House</Line1>
    <Line2>Tranley Mews</Line2>
    <Line3>Fleet Road</Line3>
    <Line4>London</Line4>
    <Postcode>NW3 2QW</Postcode>
  </Address>
```

- 25 -

```
<Billing>
  <Address>
    <Name>Gordon Brown</Name>
5    <Line1>10 Downing Street</Line1>
    <Line2>London</Line2>
    <Postcode>SW1A 2AB</Postcode>
  </Address>
</Billing>
10 <Subject>This is the subject</Subject>
  <BodyText>Here is your invoice in respect of setting up
  your e-mail address conversion system</BodyText>
```

It may also be expedient, at least within the UK, for the
15 bulk mailer to obtain and to use the Address Key within
the PAF file maintained by the Royal Mail which provides
a unique key of eight digits for each delivery point
within the UK. The Royal Mail undertakes that the
Address Key will be unique throughout the life of an
20 address, as distinct from postcodes, which can vary from
time to time when a particular property or a whole area
is re-coded. The Address Key thus enables bulk mailers
to transmit just the series of eight digit numbers for
each intended recipient to the EACS 107. This results in
25 a substantial reduction in the volume of information to
be transmitted and the associated costs, whilst
increasing the accuracy of the address information. The
postal address can then be reconstructed by the EACS 107
and included in the e-mail, or postal delivery as the
30 case may be.

- 26 -

Referring now also to Figure 10, this figure illustrates the process steps performed by the computer 40 at the EACS 107 in response to the information from the utility invoice transmission system 109.

5

In step S1001, the template information is received via the communication line 110 and stored in the invoice template store 97.

10

In step S1002, the list of the names of the customers and corresponding invoice information is also received via the communication line 110.

15

In step S1003, the text scanning processor 55 is arranged to compare the names and postal addresses of each customer as provided by the bulk mailer with the names and postal addresses stored on database 51 in order to provide the preferred delivery address.

20

In step S1004, the e-mail assembler processor 61 is arranged to assemble each invoice using the stored invoice templates and the delivery address derived by the text scanning processor 55 for each customer name and postal address. Where the Address Key in the PAF file maintained by the Royal Mail in the UK has been used to

25

- 27 -

store the e-mail assembler, processor 61 reconstructs the full postal addresses from the Address Key for each customer.

5 In step S1005, where the preferred delivery address is an e-mail address, the e-mail assembler processor 61 is arranged to assemble the e-mail and send the e-mail to the e-mail output server 43 to await transmission via the Internet to, for example, the recipient's e-mail
10 reception system 105.

Alternatively, where the preferred mode of delivery is not an e-mail address, the invoice data is sent through the printer driver 47 to the printer 49 to be printed,
15 enveloped and delivered by post to the customer in step S1007. This will also be the default mode where the customer either hasn't registered an e-mail address with the EACS 107, or hasn't registered at all.

20 It will be appreciated that whilst not included in the process steps of Figure 10, if necessary the fuzzy matching processor 57 may be used to match, for example, incorrectly entered names and addresses, which are not identified by the text scanning processor 55.

25

- 28 -

It will be appreciated that each recipient may register with the EACS 107 whether they wish to receive information such as invoices from a bulk e-mailer. It will also be appreciated that the invention is applicable to information other than invoices to be sent by a bulk mailer to a large number of potential recipients. This may include promotional information. The registered users may use the system in accordance with the invention to receive, for example, invoices but not to receive promotional information from a bulk e-mailer. The registered users preferences will then be recorded on the database 51 at the EACS 107, the bulk mailer being prevented from sending e-mails to the recipient for some categories of information where the recipient has indicated that he does not wish to accept these.

It will be appreciated that whilst in the particular embodiment described above, the utility has a communication line connection 110 to the EACS 107, it is also possible for the utility e-mail transmission system to send the invoice data and all the template data to the EACS 107 provider by e-mail either directly where the EACS is itself an Internet Service Provider, indirectly via a different Internet Service Provider or by other

- 29 -

physical bulk carriers of information like a tape or a CD.

5 It will also be appreciated that whilst the sender e-mail transmission system 101 is shown connected to the Internet via its own ISP 103, the EACS 107 may itself be an Internet Service Provider which the sender may use directly instead of going through the ISP 103.

10 It will also be appreciated that, in principle, software for performing the e-mail address conversion may be provided to a user, in particular a utility, to enable the address conversion to be performed by the user. Such software would include codes for enabling a processor
15 running the software to perform the functions of at least the database 51, the text scanning processor 57 and the e-mail assembler processor 61. Such an arrangement suffers the disadvantage, however, that the user must regularly update the software to account for changes in
20 the contents of the database 51.

- 30 -

CLAIMS

1. A system for sending e-mails, the system comprising:

means for enabling the text of the e-mail to be
5 prepared, the text including an indication of the postal
address of the recipient for the e-mail;

means for addressing the e-mail to a global e-mail
address of an e-mail address conversion system effective
to re-address the e-mail on the basis of the postal
10 address; and

means for transmitting the e-mail to the global e-
mail address.

2. A system according to claim 1, including means for
15 scanning the text of the e-mail to identify the postal
address of the recipient, and means for tagging the
postal address of the recipient within the e-mail.

3. A system according to claim 2, wherein said means
20 for tagging uses extendible markup language.

4. A system according to any one of the preceding
claims, including means for encrypting the text of the
e-mail.

25

- 31 -

5. A system according to any one of claims 2 to 4, including means for establishing a dialog box enabling the user to confirm the identified postal address.

5 6. A system according to any one of the preceding claims, including means for setting up an account for payment for transmission of the e-mail.

10 7. A system according to any one of the preceding claims, including means for storing a template for prompting the user to enter the postal address at a predetermined position in the e-mail text.

15 8. A system for addressing an e-mail sent from a sender to one or more intended recipients within a plurality of users, the system comprising:

data storage means storing the correspondence between each user's postal address and their e-mail address;

20 means for receiving an e-mail sent by the sender;
means for deriving the postal address of each of the one or more intended recipients of the incoming e-mail from the incoming e-mail;

25 means for interrogating the storage data means to obtain the e-mail address for each intended recipient

- 32 -

from the derived postal address; and

means for addressing the text of the e-mail to each intended recipient.

5 9. A system according to claim 8, further comprising:
 means for recording the preferred delivery mode for
each user in said data storage means including an
indication of whether the user is able to receive e-
mails;

10 wherein the addressing means includes means for
instigating alternative delivery of the text to the
recipient if the recipient is not recorded as being able
to receive e-mails; and

 the addressing means includes means for addressing
15 an e-mail including the text to the recipient if the
recipient is recorded as being able to receive e-mails.

10. A system according to claim 8 or claim 9, including
accounting means for enabling payment of the sender for
20 use of the system, said means for receiving incoming e-
mails being effective to debit the sender's account each
time an e-mail is received from the sender.

11. A system according to any one of claims 8 to 10, in
25 which the sender is a bulk sender, the system including:

- 33 -

means for receiving template invoices from the bulk sender;

means for receiving invoice information for each of a plurality of recipients from the bulk sender; and

5 means for assembling invoices for each recipient based on the template information and the invoice information;

wherein the addressing means is effective to address each invoice to a respective recipient.

10

12. A system according to any one of claims 8 to 11, including fuzzy logic means for processing the text to derive each recipient's postal address in the event that a unique postal address for the recipient is not
15 otherwise derivable.

15

13. A system according to any one of claims 8 to 12, including means for sending an e-mail message to the sender denoting whether the directing means has directed
20 the text of the e-mail to the recipient.

20

14. A system according to any one of claims 8 to 13, including means for blocking the transmission of incoming e-mails including information of one or more
25 predetermined categories.

25

- 34 -

15. A system according to any one of claims 8 to 14, wherein the data storage means includes data based on the PAF database maintained by the U.K. Royal Mail.

- 5 16. A method of sending e-mails comprising:
- identifying the postal address of the recipient for the e-mail from the text of the e-mail;
- addressing the e-mail to a global e-mail address of an e-mail address conversion system effective to re-
- 10 address the e-mail on the basis of the postal address; and
- transmitting the e-mail to the global e-mail address.

- 15 17. A method according to claim 16, including scanning the text of the e-mail to identify the postal address of the recipient, and tagging the postal address of the recipient within the e-mail.

- 20 18. A method according to claim 17, wherein said tagging uses extendible markup language.

19. A method according to any one of claims 16 to 18, including encrypting the text of the e-mail.

- 35 -

20. A method according to any one of claims 16 to 19, including establishing a dialog box enabling the user to confirm the identified postal address.

5 21. A method according to any one of claims 16 to 20, including means for setting up an account for payment for transmission of the e-mail.

10 22. A method according to any one of claims 16 to 21, including storing a template for prompting the user to enter the postal address at a predetermined position in the e-mail text.

15 23. A method of addressing an e-mail sent from a sender to one or more intended recipients within a plurality of users comprising:

storing the correspondence between each user's postal address and their e-mail address;

receiving an e-mail sent by the sender;

20 deriving the postal address of each of the one or more intended recipients of the incoming e-mail from the incoming e-mail;

25 interrogating the storage data means to obtain the e-mail address for each intended recipient from the derived postal address; and

- 36 -

addressing the text of the e-mail to each intended recipient.

24. A method according to claim 23, further comprising:

5 recording the preferred delivery mode for each user in said data storage means including an indication of whether the user is able to receive e-mails;

 instigating alternative delivery of the text to the recipient if the recipient is not recorded as being able to receive e-mails; or

10

 addressing an e-mail including the text to the recipient if the recipient is recorded as being able to receive e-mails.

15 25. A method according to claim 23 or claim 24, including establishing an accounting system for enabling payment of the sender for use of the system, the sender's account being debited each time an e-mail is received from the sender.

20

26. A method according to any one of claims 23 to 25, in which the sender is a bulk sender, the method including:

 receiving template invoices from the bulk sender;

25 receiving invoice information for each of a

- 37 -

plurality of recipients from the bulk sender; and
assembling invoices for each recipient based on the
template information and the invoice information; and
addressing each invoice to a respective recipient.

5

27. A method according to any one of claims 23 to 26,
including fuzzy logic processing the text to derive each
recipient's postal address in the event that a unique
postal address for the recipient is not otherwise
derivable.

10

28. A method according to any one of claims 23 to 27,
including sending an e-mail message to the sender
denoting whether the directing means has directed the
text of the e-mail to the recipient.

15

29. A method according to any one of claims 23 to 28,
including blocking the transmission of incoming e-mails
including information of one or more predetermined
categories.

20

30. A method according to any one of claims 23 to 28
using the PAF database maintained by the U.K. Royal Mail.

25

31. A computer program product containing processor

- 38 -

implementable instructions for causing a processor to operate as a system according to any one of claims 1 to 15.

5 32. A computer program product containing processor implementable instructions for performing a method according to any one of claims 16 to 30.

10 33. A signal conveying processor implementable instructions for causing a processor to operate as a system according to any one of claims 1 to 15 or for performing a method according to any one of claims 16 to 30.

15 34. A method of generating a signal conveying an electronic message comprising the steps of:

receiving an e-mail sent by a sender;

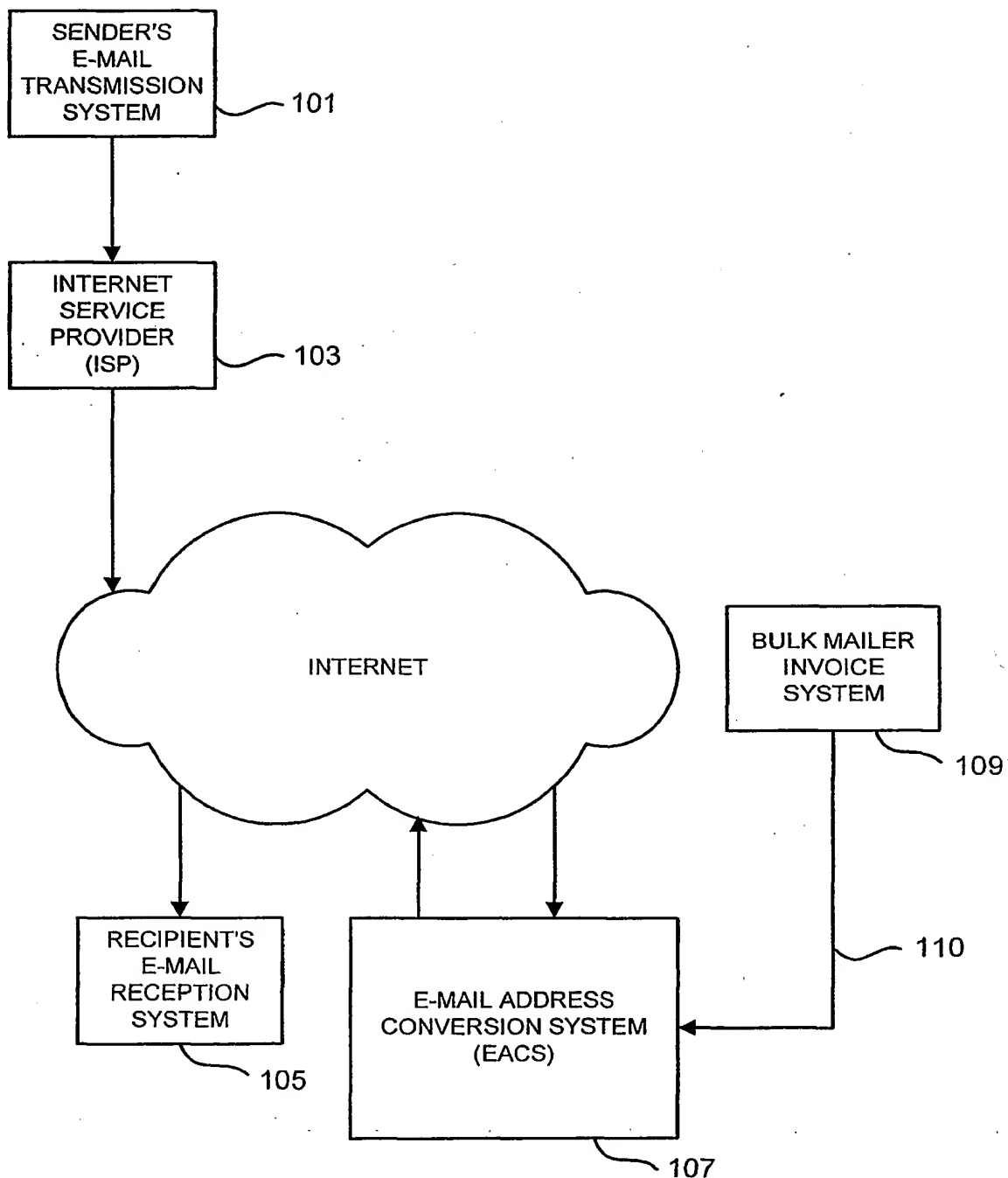
20 deriving the postal address of each of the one or more intended recipients of the incoming e-mail from the incoming e-mail;

interrogating a storage data means to obtain the e-mail address for each intended recipient from the derived postal address;

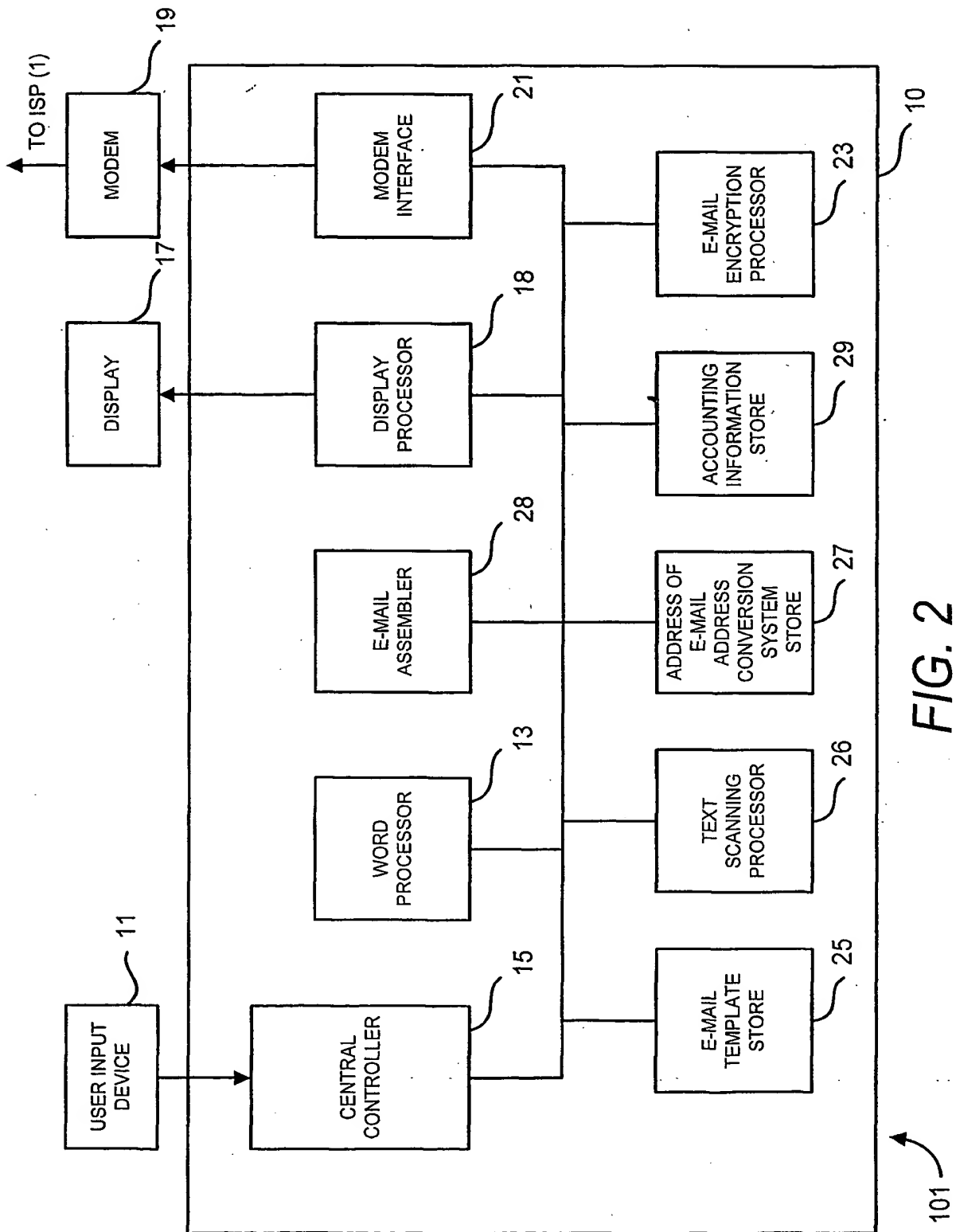
25 addressing the text of the e-mail to each intended recipient; and

- 39 -

generating a signal conveying the electronic message
addressed to each intended recipient.

**FIG. 1**

2/11



3/11

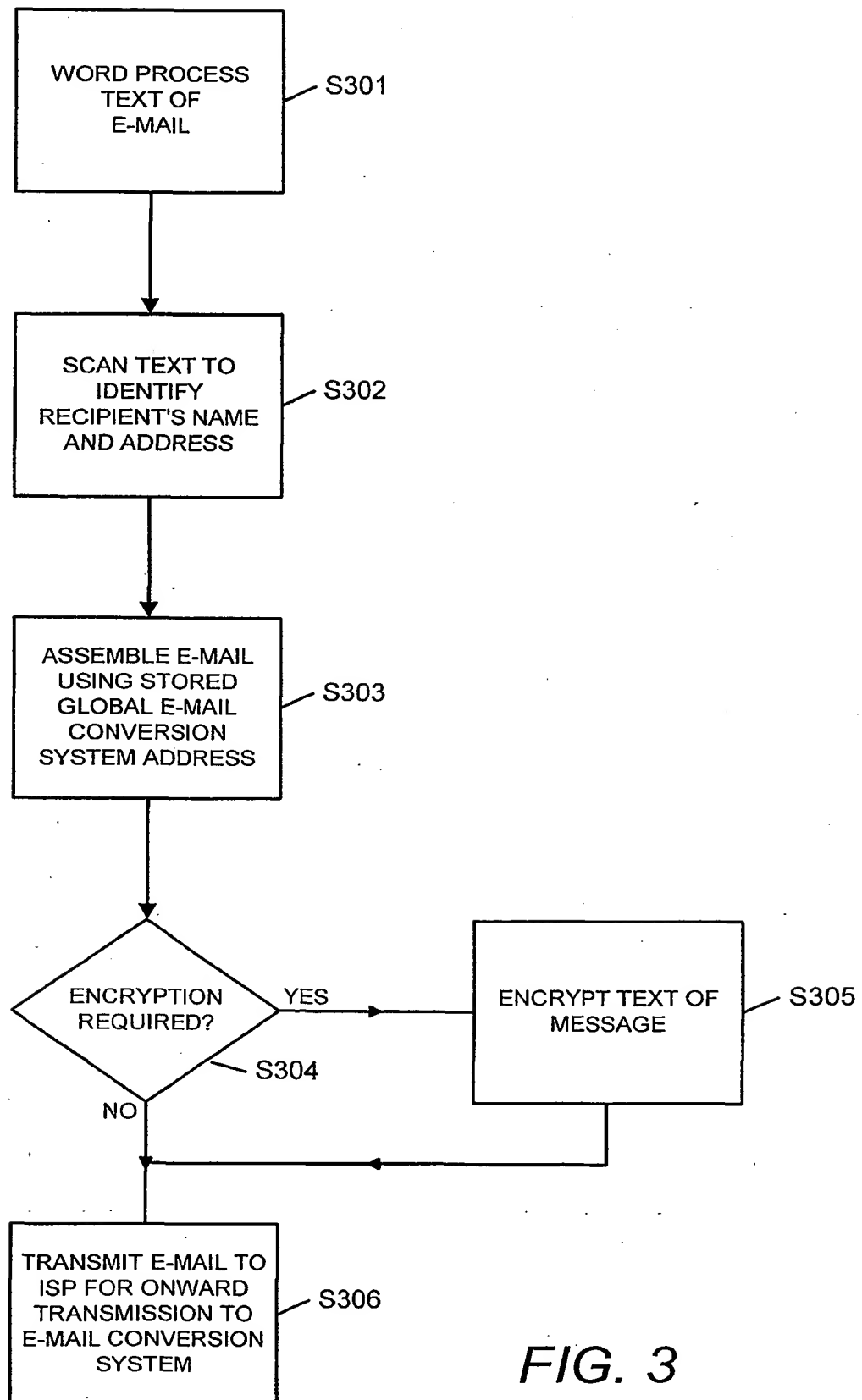


FIG. 3

4/11

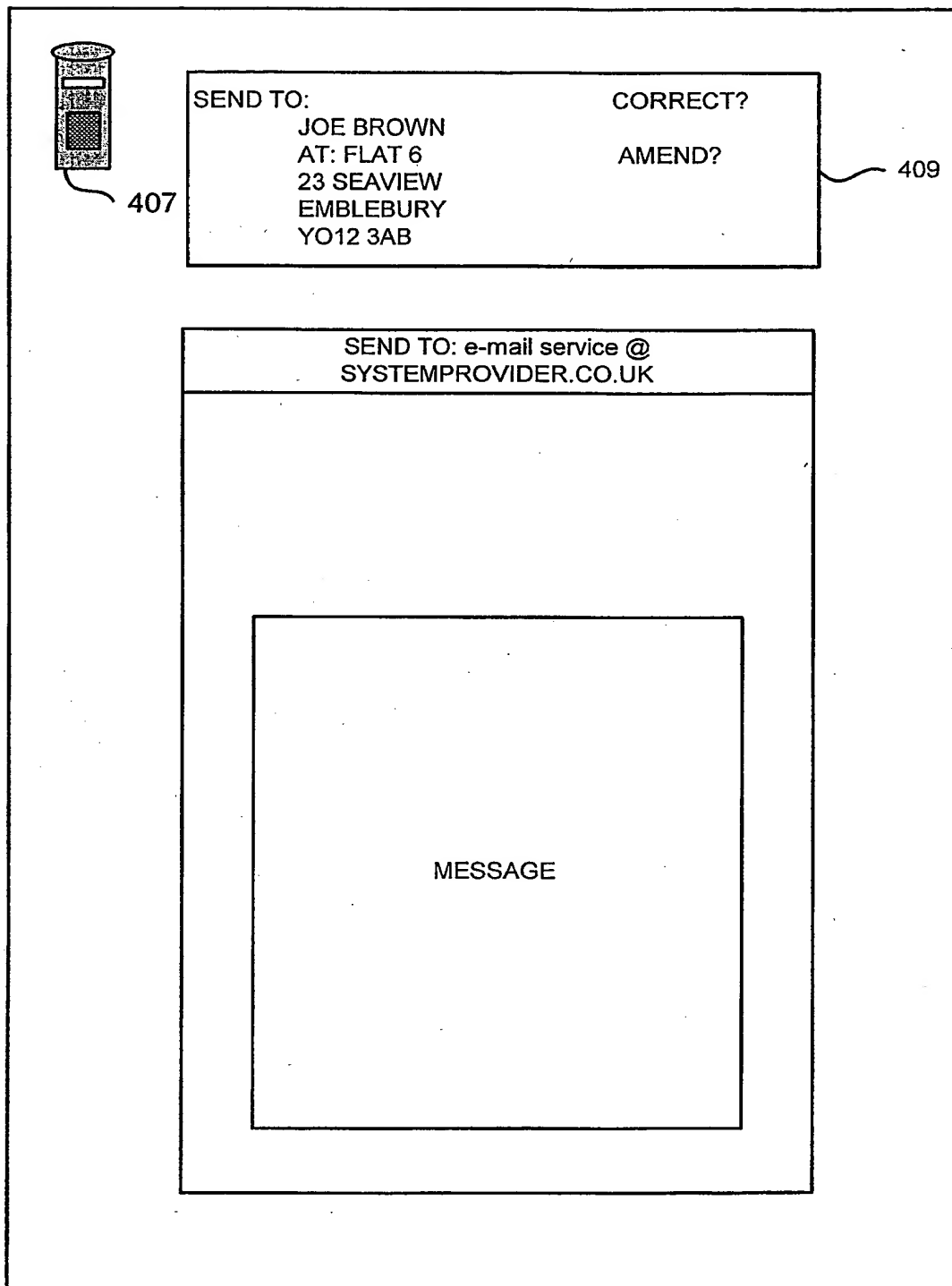


FIG. 4

5/11

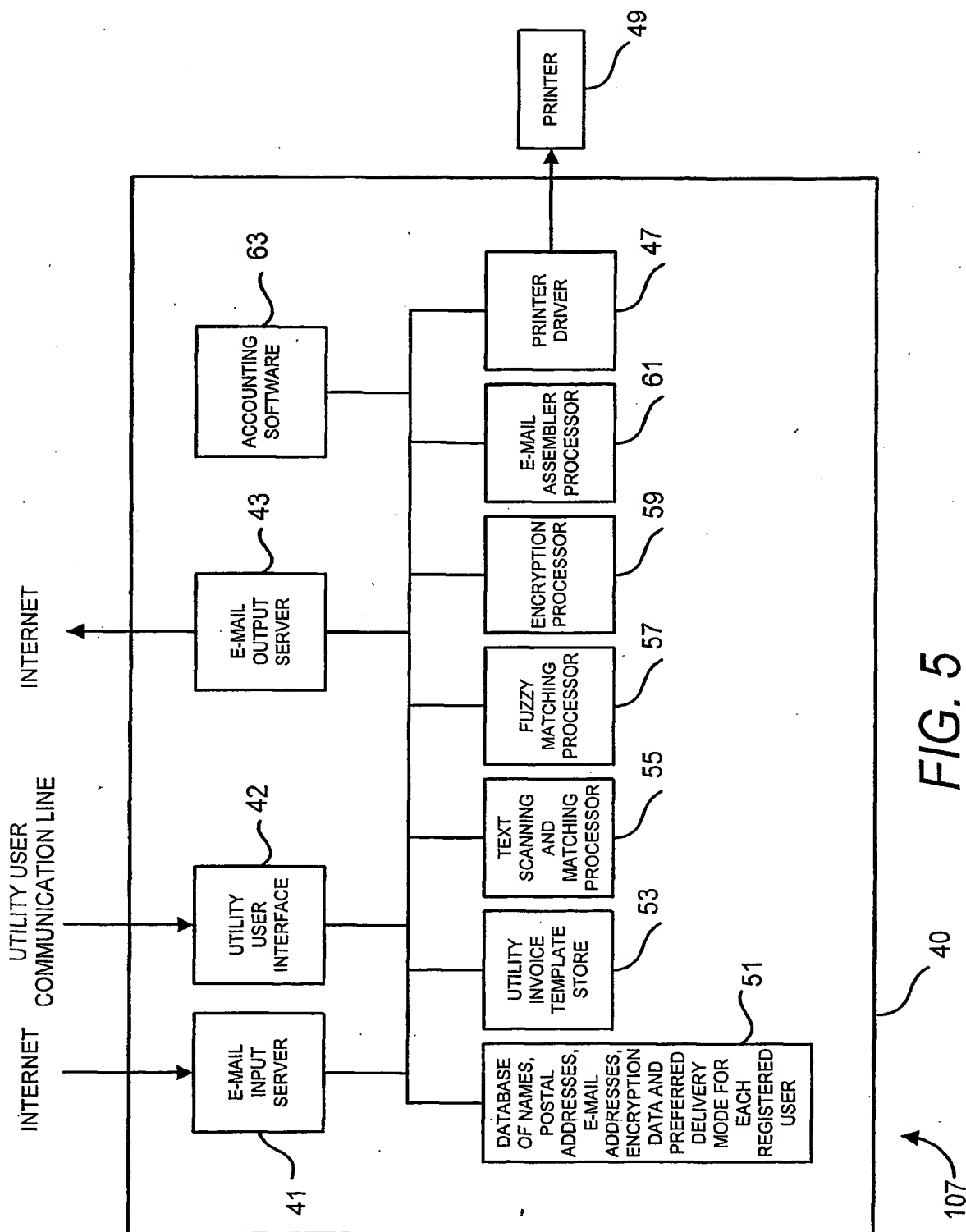


FIG. 5

6/11

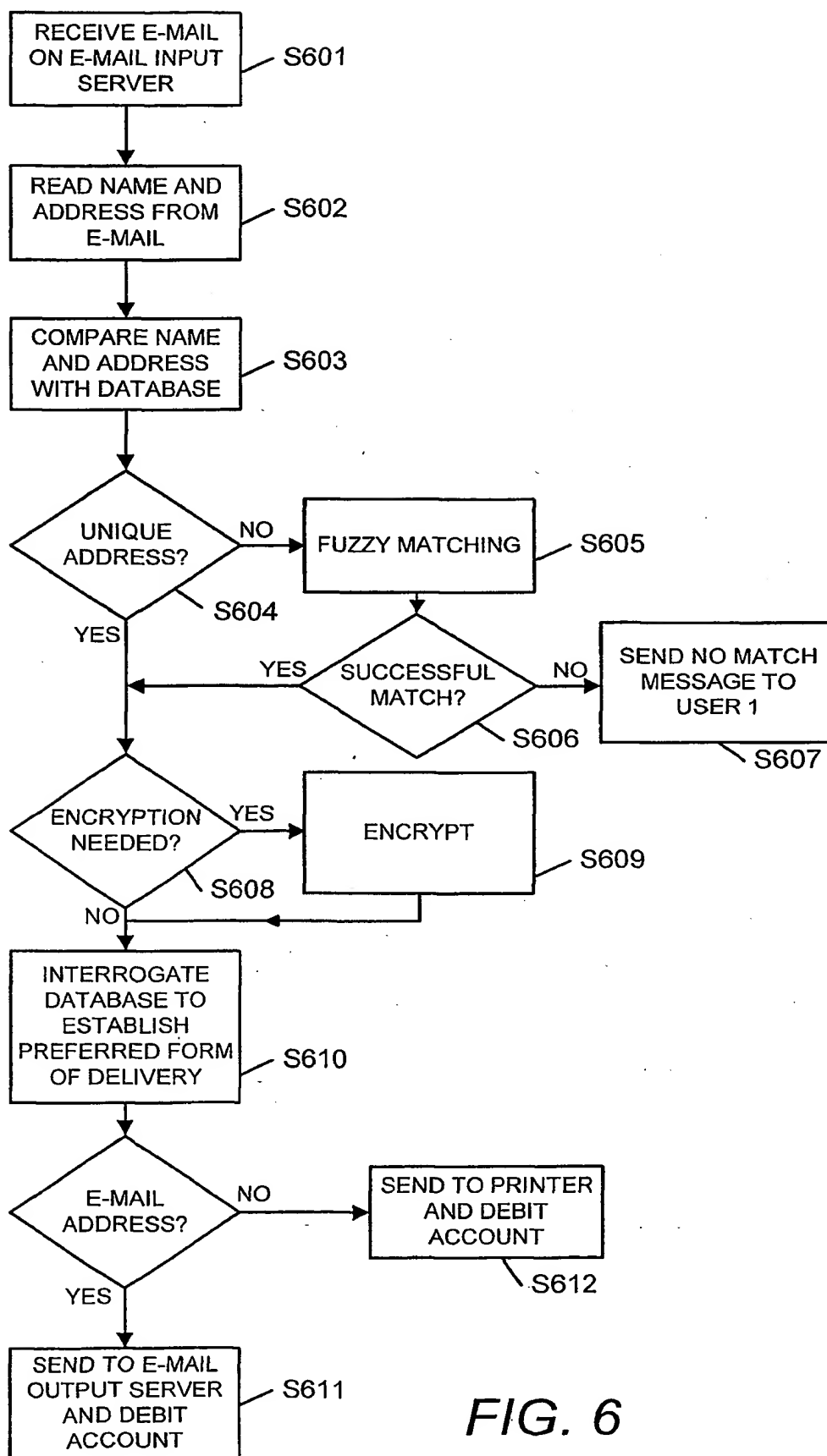


FIG. 6

7/11

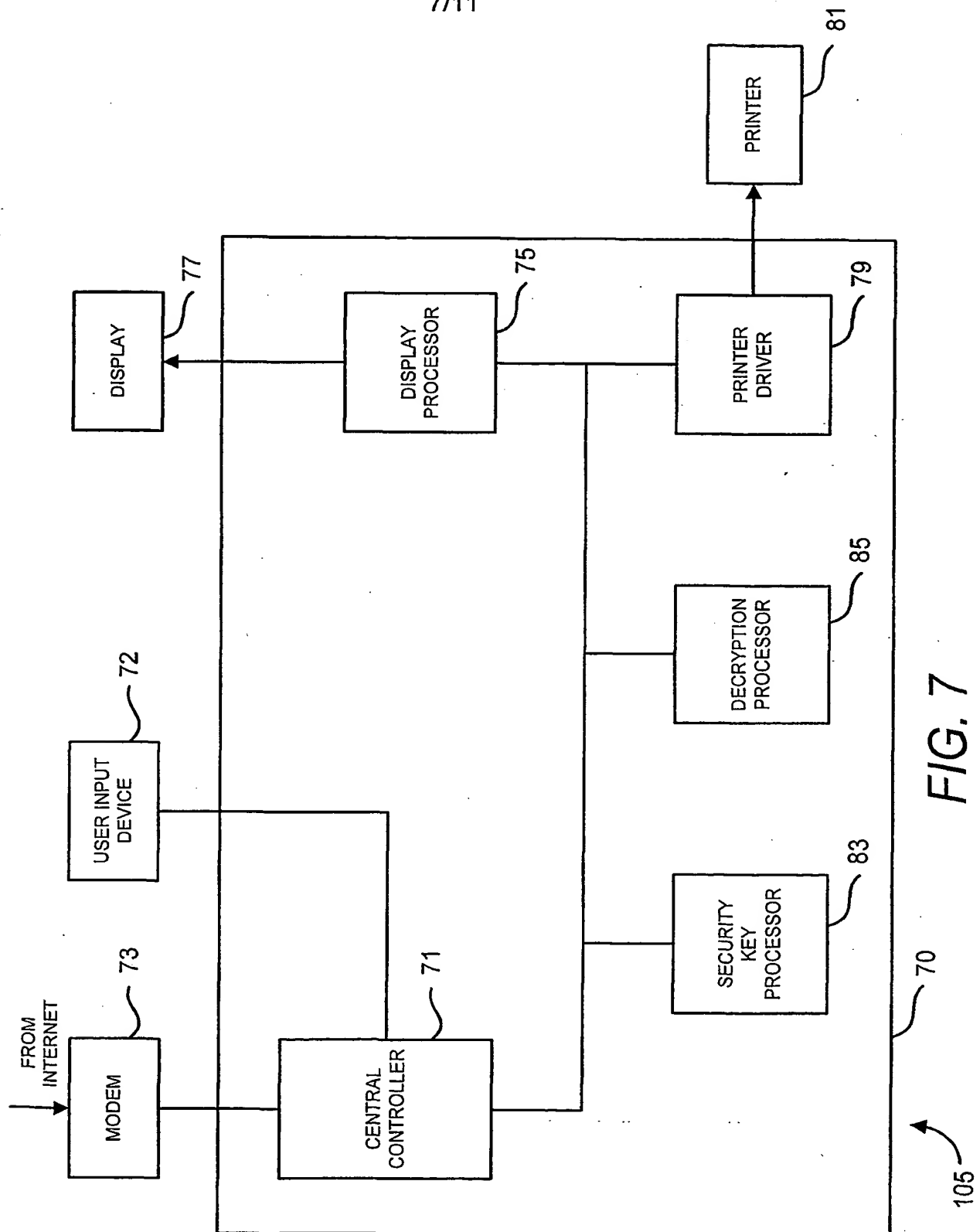
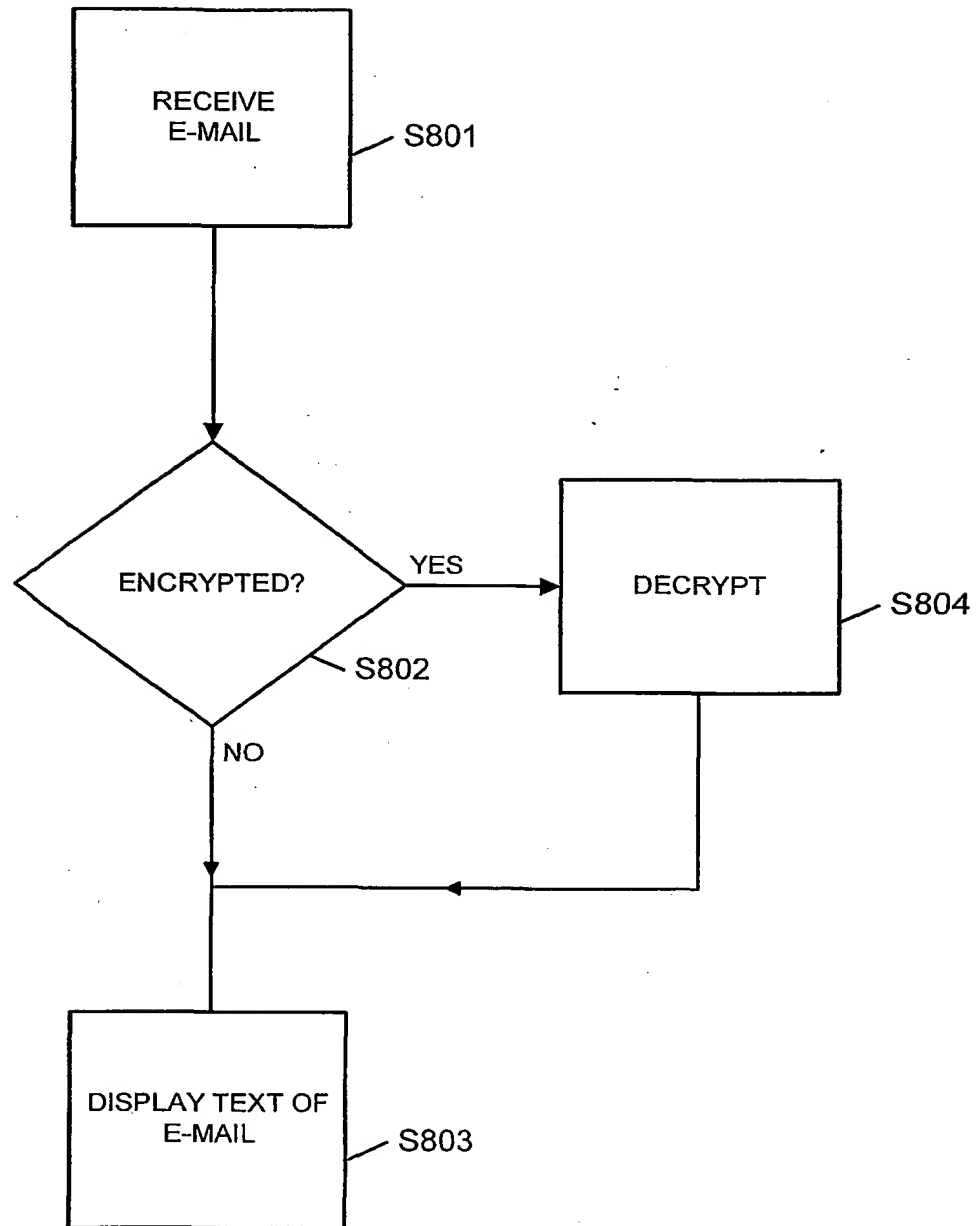


FIG. 7

8/11

*FIG. 8*

9/11

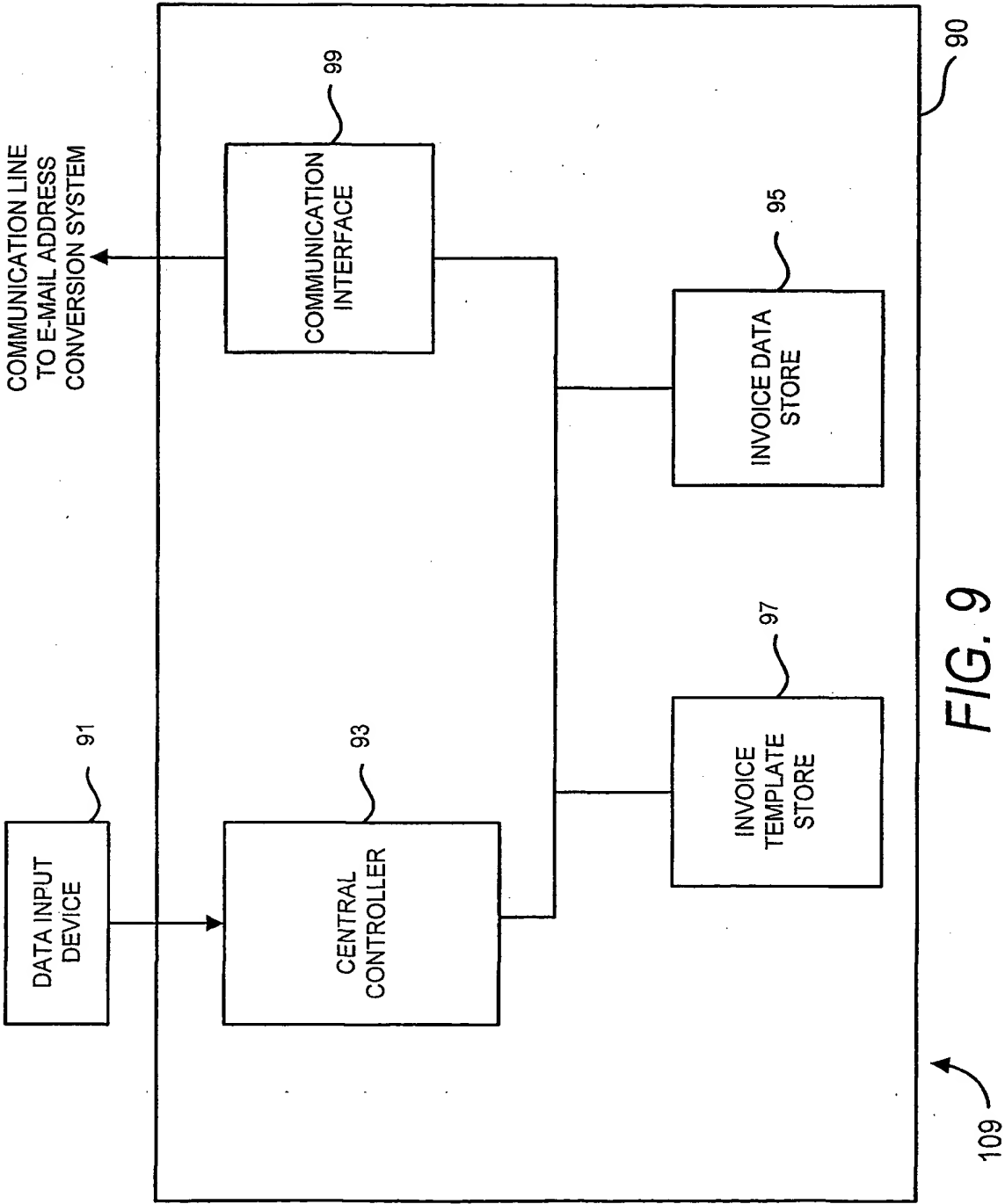


FIG. 9

10/11

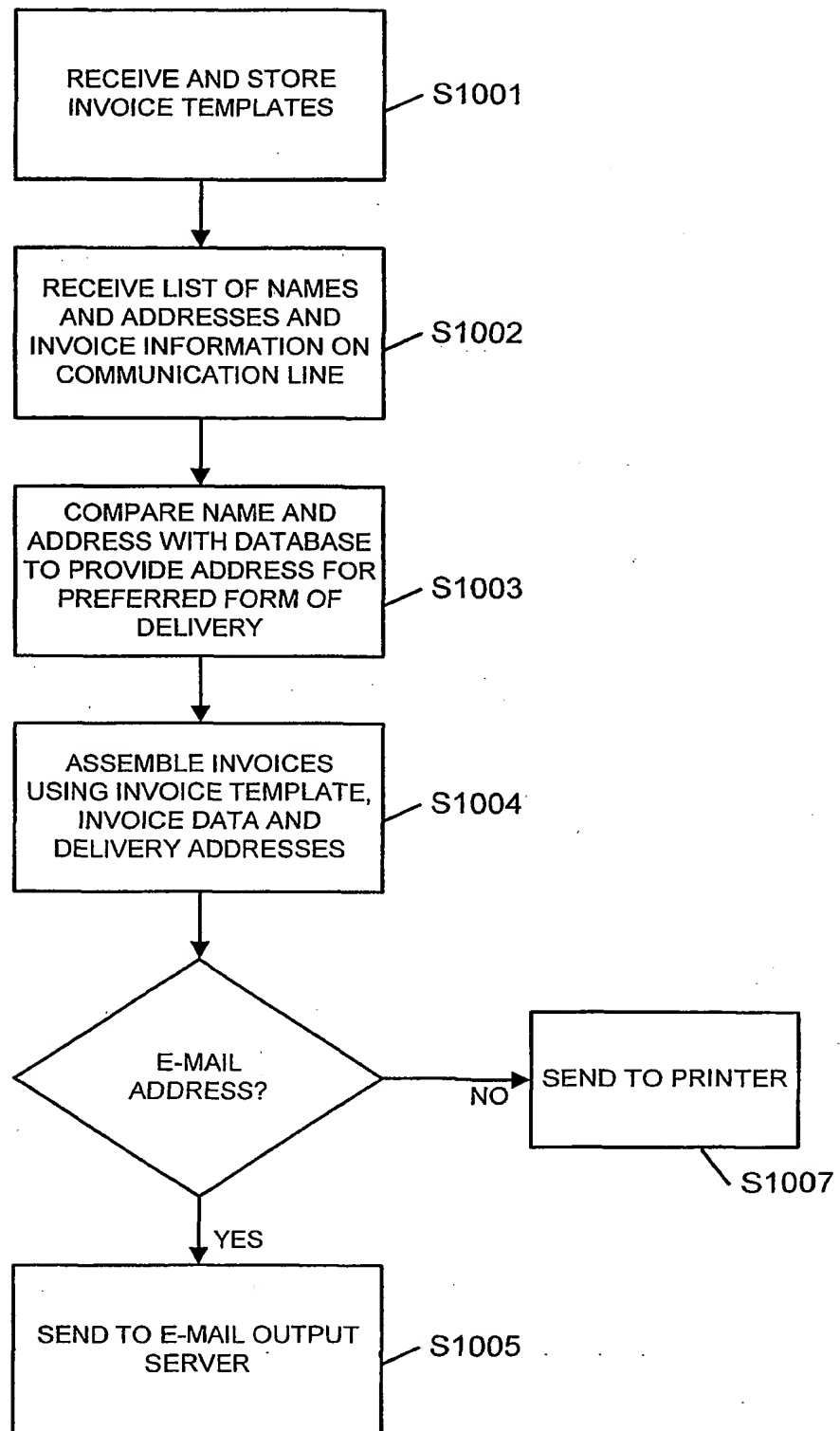
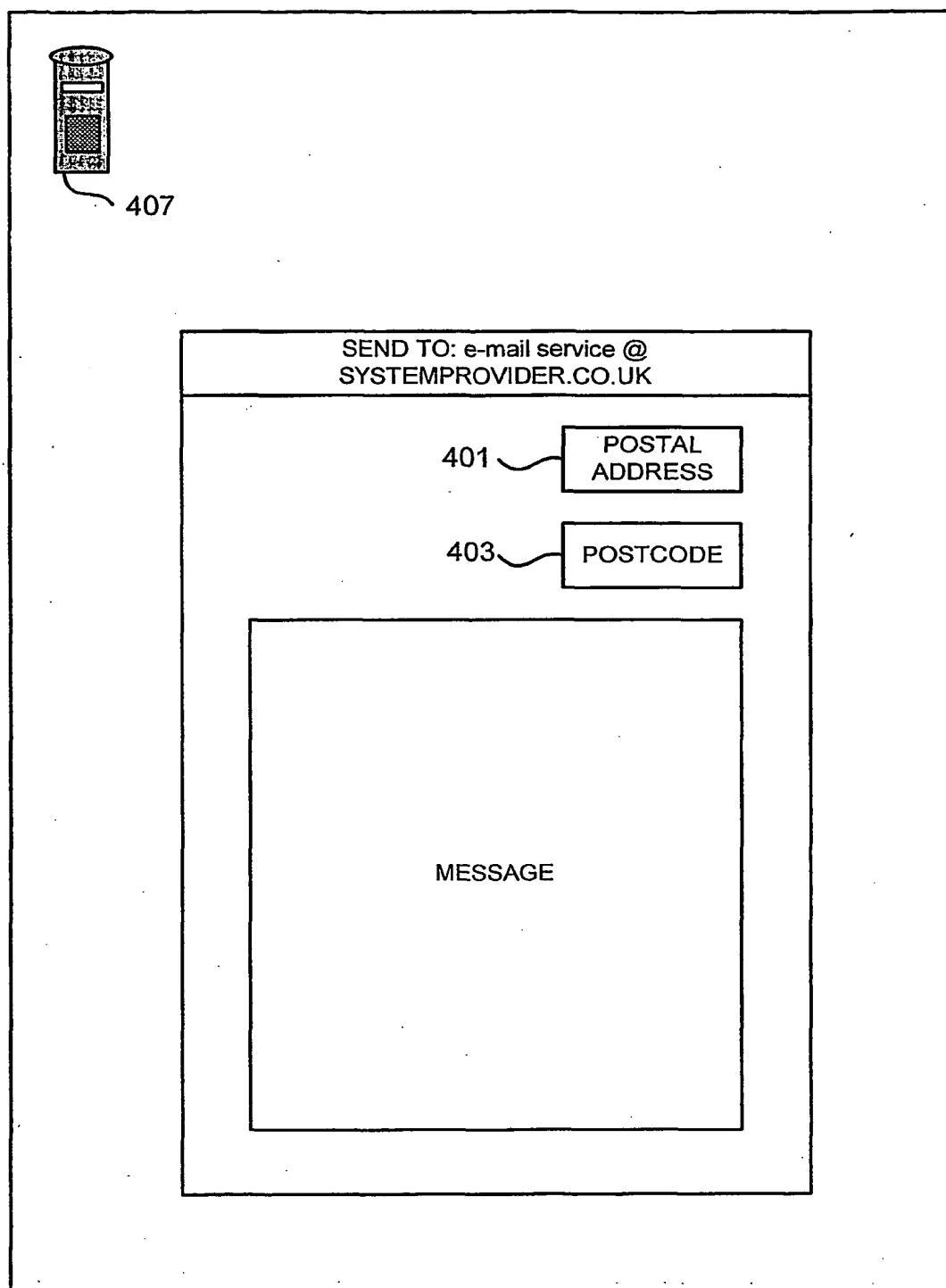


FIG. 10

11/11

*FIG. 11*